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## CHAPTER III

### RESEARCH METHODOLOGY

#### III.1. Research Design

This research was a quasi – experimental research which included an assignment of participant groups. Gay and Airasian (2000) state in order to receive permission to use school children in a research, a researcher often has to agree to keep students in existing classrooms intact. Thus, entire classrooms, not individual students, are assigned to treatments. In this research, the researcher used pre- and post test design. In conducting this research, two classes of the first grade students of SMAN 2 Tambang were participated. The researcher assigned both groups, administered a pretest and post-test to both groups, conducted experimental treatment activities with the experimental group only and then administers a post test in order to assess the differences between the two groups.

In this research, there were an experimental group and a control group. In the experimental group, the students were provided a treatment by applying Guided Reading and Summarizing Procedure (GRASP) strategy and the other group was taught by applying conventional way. Both experimental group and control group, the students were given a pre – test at the beginning of the teaching, learning for identifying students' reading and writing abilities. Then, the students of the experimental group were provided several treatments during the process of reading and writing activities. At last, both experimental group and the control group were given post test at the end of the teaching learning processes. It was

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essentially important to determine the effect of applying Guided Reading and Summarizing Procedure (GRASP) strategy on students' reading and writing abilities.

According to Creswell (2008) the research design can be illustrated as follows:

**Table III.1**

**Research Design**

Pre - and Post test Design		Time	
Select Control Group	Pre test	No Treatment	Post test
Experimental Group	Pre test	GRASP strategy	Post test

a. Procedures of collecting data for experimental group

1. Pre-test

The pre-test was carried out to determine the students' reading and writing abilities with their score.

2. Treatment

The treatment was conducted for the experimental group by using Guided Reading and Summarizing Procedure (GRASP) strategy on students' reading and writing abilities applied for about four meetings.

3. Post-test

After conducting the treatment, the post-test was administered and analyzed as final data of this research. The post-test given was the same test as the pretest.

b. Procedures of collecting data for control group

1. Pre-test

The control group was given a pre-test to determine their reading and writing abilities. The test was the same as for the experimental group.

2. No treatment

3. Post-test

Post-test also was given to a control group and the result was analyzed and used as final data for this research.

### III.2. Time and Location of the Research

This research was conducted at SMAN 2 Tambang. It is located on Jl. Bupati, Kubang Raya sub-district Kampar. The duration of the research was two months, (March to April 2017).

### III.3. Population and Sample of the Research

#### III.3.1 Population

The population of this research was the first year students of SMAN 2 Tambang academic year 2016/2017 which consisted of 10 classes and they had the same capability, and two classes were chosen by using cluster sampling technique.

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**Table 3.2**

No	Class	Male	Female	Total of Students
1	X 1	16	18	33
2	X 2	16	16	32
3	X 3	15	17	32
4	X 4	15	18	33
5	X 5	14	18	32
6	X 6	15	18	33
7	X 7	14	19	33
8	X 8	13	17	30
9	X 9	12	18	30
10	X 10	12	18	30
<b>Total</b>		<b>142</b>	<b>176</b>	<b>318</b>
<b>Population</b>				

The total of the population was 318 students. The population above was large to be taken as a sample of the research. Based on the limitation of the research, only two classes were taken by using cluster sampling technique. Gay (2000) states cluster sampling randomly selects groups, not individual. All the members of selected groups had similar characteristics. One class was a treatment class or experimental class and the other was a control class. The writer asked the

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English teacher to know the class that had same achievement in English on every first year class in SMAN 2 Tambang, X.1, X.2, X.3, X.4, X.5, X.6, X.7, X.8, X.9 and X.10. After that, the writer took two classes as a sample of research. It was class X.3 for experimental class and X.2 for control class.

The specification of the research sample can be seen on the table below:

**Table 3.3**

SAMPLE	FEMALE	MALE	TOTAL
X.3	17	15	32
X.2	16	16	32
TOTAL	33	31	64

#### III.4. Data Collection Technique

In order to achieve this research, some instruments were conducted to get the data of reading and writing score. They were lesson plan, reading and writing test, and teachers' observation sheets. The students were tested by asking them to read a narrative text first and then answered the question given based on the text, after that they wrote a text. The tests were given before (pre – test) and after (post – test) of the observation. The teacher taught the students by using Guided Reading and Summarizing (GRASP) strategy for the experimental group and without using GRASP for the control group.

The pre – test was done in order to identify the students' ability in reading and writing before being taught using GRASP strategy and the post –



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test was done in order to know the significant difference of using GRASP strategy on students' reading and writing ability in narrative text.

The questions were related to the components of reading and writing:

The classification of the students' score for reading and writing tests is shown below:

**Table III.4**  
**The Classification of Students' Score**

Number	Score	Classification
1	81 – 100	Excellent
2	61 – 80	Good
3	41 – 60	Mediocre
4	21 – 40	Poor
5	0 – 20	Very Poor

(Harris, 1986)

### III.5 Validity and Reliability of Instrument Test

To obtain data from the participants, the researcher made try out the reading comprehension test to determine the validity and reliability of instruments, then, analyzing the reliability by using SPSS 20. Validity is a measurement of instrument which measures what should be measured. Parmjit (2006) "Validity is an evaluation of the adequacy and appropriateness of the

interpretation and uses of assessment result.” It means that the instrument in the research can measure the purpose of the research and give the valid result based on the research’s purpose. Parmjit (2006) says that there are types of validity.

#### 1. Content validity

- a. Compare the assessment task to the specifications describing the task domain under consideration.
- b. The extent to which an assessment procedure adequately represents the content of the assessment domain being sampled

#### 2. Construct validity

- a. Establish the meaning of assessment results by controlling the development of the assessment, evaluate the cognitive procession used by students to perform tasks, evaluate the relationships of the scores with other relevant measures, and experimentally determine what factors influence performance.
- b. The extent to which empirical evidence confirms that an inferred construct exists and that a given assessment procedure is measuring the inferred construct accurately.

#### 3. Criterion validity

- a. Comparison of assessment results with another performance obtained at a later date or with another measure of performance obtained concurrently.
- b. The degree to which performance of an assessment procedure accurately predicts a students’ performance on an external criterion.

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The research used to construct validity. It was used to know what test really measure. We need to have scholars examine the test as an evidence that the test was valid and could measure what we want to measure.

According to (Creswell 1990), there are five types of reliability. They are test-retest reliability, alternate forms reliability, alternate forms and test retest reliability, interpreter reliability and internal consistency reliability. This research used inter rater reliability, because there were two raters in order to assess the students' writing ability.

Brown, (2003) says that the reliability has to do with accuracy of measurement. This kind of accuracy was reflected obtaining similar results when the measurement was repeated on different occasion or with different instruments or by different persons. Brown states that the characteristic of reliability was sometimes termed consistency. Meaning that, we can say the test is reliable when an examinee's result are consistent with repeated measurement. The following table is the level of internal consistency of Cronbach Alpha.

Reliability indicates how consistently a test measures whatever it does measure. The table below is the categories of reliability test used in determining the level of reliability of the test.

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**Table III.5**  
**The Level of Reliability**

No	Reliability	Level of Reliability
1	0.0 – 20	Low
2	0.21 – 0.40	Sufficient
3	0.41 – 0.70	High
4	0.71 – 1.0	Very high

(taken from zelly in bahraeny thesis)

To obtain the reliability of the test given used SPSS 20 program to find out whether or not the test was reliable.

**Table III.6**  
**Cronbach Alpha Table**

Reliability Statistics	
Cronbach's Alpha	N of Items
.904	20

From the table above, it can be seen that the value of cronbach alpha is that 0.904 by highest reliability. It means that the items are reliable.

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**Table III.7**  
**The Analysis of Try out Reading Comprehension**

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	11.9000	27.679	.852	.891
Item 2	11.7333	30.409	.380	.903
Item 4	11.9667	29.964	.391	.904
Item 5	11.8333	29.454	.521	.900
Item 6	11.9333	28.961	.587	.898
Item 7	12.0333	29.413	.495	.901
Item 8	12.1000	29.679	.455	.902
Item 9	11.8000	28.855	.664	.896
Item 10	11.7667	29.978	.450	.902
Item 12	11.9000	28.507	.684	.896
Item 13	11.8667	29.706	.459	.902

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Item 14	11.9000	28.024	.782	.893
Item 15	11.9333	29.789	.428	.903
Item 16	11.7000	29.528	.611	.898
Item 18	12.1333	28.878	.622	.897
Item 19	11.8333	29.937	.425	.903
Item 20	11.7000	29.528	.611	.898
Item 22	11.8000	29.545	.520	.900
Item 24	11.8667	29.844	.432	.903
Item 25	11.8000	30.028	.421	.903

### III.6. Data Analysis Technique

To find out whether there was a significant effect of GRASP on students' reading and writing abilities in the first grade students of SMAN 2Tambang. The researcher used simple regression by SPSS.

The scoring guide was chosen as the criteria of scoring representing the basic aspects of reading and writing.

In analyzing the data, the researcher used scores of pre-test and post-test of experimental and control groups. This score was analyzed statistically for both

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descriptive and inferential statistic. In this research, the researcher used these following formulas:

### 1. Independent Sample t-test

To find out whether there was a significant difference or there was no significant difference between two or more variables could be analyzed by using an Independent Sample t test. Gay added that the t-test for independent sample is used to determine whether there is probably a significant difference between the means of two independent samples. Independent sample t-test was used to find out the results of the first and second hypotheses. They were as follows:

- a. To find out whether there is a significant difference of students' reading and writing before giving the treatment by using GRASP for experimental class and non treatment for control class.
- b. To find out whether there is a significant difference of students' reading and writing after giving the treatment by using GRASP for experimental class and non treatment for control class.
- c. To analyze the final-test scores of the experimental group and the control group, the following formula is used:

$$t = \frac{M_X - M_Y}{\sqrt{\frac{SD_X^2}{N_1 - 1} + \frac{SD_Y^2}{N_2 - 1}}}$$

Where:

t = The value of comparing two means

$M_X$  = Mean of the score in pre-test

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$M_Y$  = Mean of the score in post-test

$SD_X$  = Standard deviation of experimental group

$SD_Y$  = Standard deviation of control group

$N_1$  = Number of the sample in pre-test

$N_2$  = Number of the sample in post-test

1 = the constant number

The t-table has the function to see if there is a significant difference between the mean of the score of both experimental and control groups. The t-obtained value is consult with the value of the t – table at the degree of freedom (df) =  $(N_1+N_2)-2$  which is hypothesized

$H_a$ :  $t_o > t\text{-table}$

$H_o$ :  $t_o < t\text{-table}$

$H_a$  is accepted if  $t_o > t\text{-table}$  or there is effective after giving the treatment GRASP Strategy on students' reading and writing.

## 2. Paired Sample t-Test

Paired Sample t-Test is known also as Non-independent sample t-test. Gay (2000) states that t-test for non independent samples will use to compare groups that are formed by some type of matching or to compare a single group's performance on a pre- and post-test or on two different treatments. In this time, the researcher used to find out whether there is a significant effect before and after using GRASP Strategy toward students' reading and writing by using the pre-test and post-test score of experimental class. They are as follows:



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1. To find out whether there is a significant difference of students reading and writing before giving the treatment by using GRASP Strategy.
2. To find out whether there is a significant difference of reading and writing after giving the treatment by using GRASP Strategy.
3. To analyze the final-test scores of the experimental group and the control group, the following the formula of paired-sample t-test:

$$t = \frac{\bar{D}}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{N(N-1)}}$$

D: Gain Score (D=X2-X1)

The t-table has the function to see if there is a significant difference between the mean of the score of both pretest and posttest. The t-obtained value is consulted with the value of t-table at the degree of freedom (df)N-1 which is statistically hypotheses:

$H_0$ :  $t_o < t\text{-table}$

$H_a$ :  $t_o > t\text{-table}$

$H_0$  is accepted if  $t_o < t\text{-table}$  or there is no significant effect after using GRASP toward students' reading and writing.

$H_a$  is accepted if  $t_o > t\text{-table}$  or there is significant effect after using GRASP towards students' reading and writing.

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Afterward, it is better to find the coefficient effect of T-test by following formula<sup>1</sup>:

$$r^2 = \frac{t^2}{t^2 + n - 1}$$

$$kp = r^2 \times 100\%$$

Where:

Kp : Coefficient effect

r<sup>2</sup> : Coefficient

Afterward, it is better to find the effect size of T-test by following formula<sup>2</sup>:

$$\tilde{\eta}^2 = \frac{t^2}{t^2 + n - 1}$$

$$eta\ squared = \tilde{\eta}^2 \times 100\%$$

Where:

eta squared : Coefficient effect

$\tilde{\eta}^2$  : Coefficient